UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,524	08/26/2003	Norberto Silvi	RD28684-2	4678

23413 7590 10/20/2004

CANTOR COLBURN, LLP
55 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

EXAMINER	
ZEMEL, IRINA SOPHIA	
ART UNIT	**PAPER NUMBER**
1711	

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/648,524	SILVI ET AL.	
	Examiner	Art Unit	
	Irina S. Zemel	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) *32-46* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-46* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/15/04;1/26/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *IDS 9/26/03*.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Invention Group I, claims 1-31 in the reply filed on September 15, 2004 is acknowledged.

Claim Rejections - 35 USC § 101

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-31 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-47 of copending Application No. 10/648542. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications disclose methods for separating a polymer from a solvent, comprising introducing a superheated polymer-solvent mixture to an extruder, wherein the extruder comprises an upstream vent and a downstream vent; removing solvent from the superheated polymer-solvent

mixture via the upstream vent and the downstream vent; and isolating a polymer product from the superheated polymer-solvent mixture; wherein the polymer-solvent mixture comprises a polymer and a solvent, wherein the amount of polymer in the polymer-solvent mixture is less than or equal to about 75 weight percent based on the total weight of polymer and solvent. The claims in both applications further claim identical extrusion conditions and similar extruder structures. Any difference in the conditions and extruder structures claimed in dependent claims is known in the art and would have been obvious for an ordinary artisan. See, for example, extrudes systems disclosed in Silvi et al., US Pub. No. 2003/0236384. The difference between the independent the claims 1 and 31 of the '524 applications and independent claims 1 and 43 of the instant application is that the claims of the '542 applications are directed to a polymer genus, while the claims of the instant application are specifically directed to poly(arylne ether). The genus claimed in claims of the '524 application would have been obvious from any species of the genus, such as claimed poly(arylene ether) and other polymer species, such as polyetherimide, polycarbonate, polyamide, polyarylate, polyester, polysulfone, polyetherketone, polyimide, olefin polymer, polysiloxane, explicitly claimed in dependent claim 2. Specific polymer, poly(arylene ether), would have been obvious from dependent claim 28 explicitly claiming such polymer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 6-7, 17, 20, 24, 25, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by US PG Publication 2002/0062054 to Cistone et al., (hereinafter "Cistone").

Cistone discloses a process for separating a polymer from a solvent, which process includes introducing a superheated polymer-solvent mixture to an extruder; removing solvent from the superheated polymer-solvent mixture; and isolating a polymer product from the superheated polymer-solvent mixture. See, for example, claim 1. The

amount of polymer in the polymer-solvent mixture is, for example, 33% as per illustrative example 1. The reference explicitly discloses that volatile solvent is removed from the extruder via at least two vapor port through couplings 43 and 44. See paragraph [0045]. Thus, the disclosure fully meets limitations of claim 3 to the upstream and downstream ports. The polymer recovered in the process disclosed by Cistone is a polystyrene-type polymer or polyalkylene aromatic polymer, which meets the

limitations of claim 2. The downstream vent or couplings 43 and 44 are operated under reduces pressure as per disclosure in [0045], thus satisfying limitations of claim 3. The superheated solution is pressurized (>60 psig) and inherently at this pressure has a temperature of several degrees higher than the boiling temperature of the solvent, as per claims 6 and 7. See [0042-43]. The recovered polymer is substantially free of solvent. See tests in example 2. The same example exemplifies fee/speed ratios that satisfy limitations of claims 20. The superheated solution further satisfies requirements of claims 24-25 as per disclosure of [0038]. The solvent of choice may be halogenated polyolefin. See example 1.

The invention as claimed in claims 1-3, 6-7, 17, 20, 24, 25, and 26, thus, is anticipated by the disclosure of the Cistone reference.

Claims 1-25, 27 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by US PG Publication 2003/0236384 to Silvi et al., (hereinafter "Silvi").

Silvi discloses a method for separating a polymer from a solvent, which process includes introducing a superheated low molecular weight polymer-solvent mixture to an extruder; removing solvent from the superheated solvent –polymer solution; and isolating a polymer product from the superheated polymer-solvent mixture. See, for example, [0080]. The reference teaches that the temperature of the superheated solution is 2 to 200 C higher than the boiling temperature of the solvent as per claim 7, and the superheated solution is pressurized as per claim 6. See [0080]. The amount of polymer in the polymer-solvent mixture is between 10 and 70 percent by weight as per disclosure in [0046]. The polymer processed in the method disclosed by Silvi is a

polycarbonate-type polymer which meets the limitations of claim 2. The design of the extruder and operating conditions of the extruder disclosed in figures 1-3 (and corresponding text) fully meet all of the limitations of claims2-5, and 8-25 of the instant application. See , for example, [0074-0079]. The reference explicitly discloses that the superheated solution is transferred to the extruder by the means of nitrogen [0105], thus, at least some quantities of nitrogen are inherently introduced to the extruder as per claims 27. The residual amount of solvent in recovered polymer is disclosed as less than 1000 ppm. See, for example, Table 6.

The invention as claimed, therefore, is fully anticipated by disclosure of the Silvi reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cistone in combination with Bash, "Analyzing Devolatilization Extruders for Residuals Optimization", (hereinafter "Bash").

The disclosure of the Cistone reference is discussed above. The reference does not explicitly address the type of the extruder suitable for practicing the process disclosed in the reference, thus implying that any known type of devilatilization extruder

is suitable with reasonable expectation of adequate results. Twin-crew co-rotating extruders are well known in the art and would have been an obvious choice of an ordinary artisan in view of the disclosure of Bash that explicitly teaches that the extruders as claimed in claim 18 allow for better optimization of the residual solvent. Therefore, the invention as claimed in claim 18 would have been obvious from combined teachings of Cistone and Bash.

Allowable Subject Matter

Claims 28, 29 and 31 are allowable over the prior art of record. None of the cited art suggests recovering specifically claimed polyetherimide polymers in devilatilizing extruders.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ISZ

James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700